Small Business Innovation Research/Small Business Tech Transfer

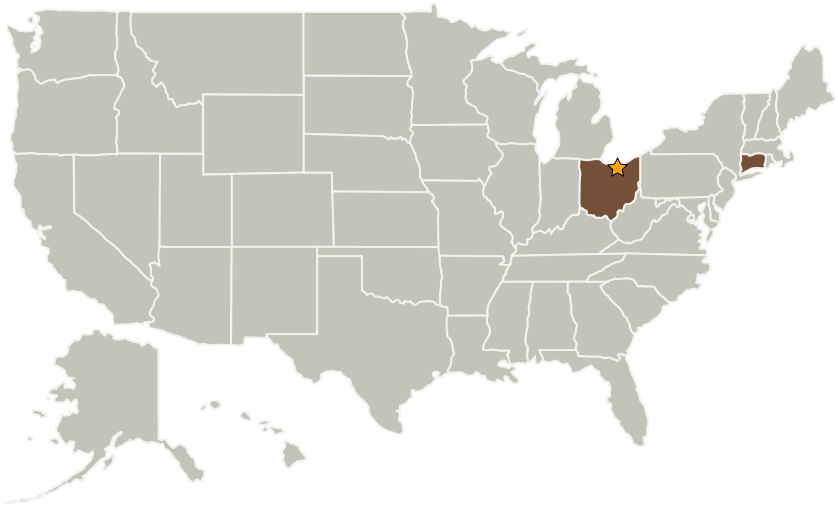
Robust High Fidelity Large Eddy Simulation Tool for Gas Turbine Combustors, Phase I

Completed Technology Project (2007 - 2007)

Project Introduction

The objective is to develop and demonstrate the use of Large Eddy Simulation (LES) for computations of gas turbine combustor flow and transport processes, using the unsteady Navier-Stokes equations on Cartesian grids with local mesh refinement and multigrid acceleration. The basic software for the coupled multigrid algorithm will be developed and demonstrated on simple flows. A Cartesian grid generator, capable of converting complex geometry into an unstructured Cartesian mesh, will be developed. These LES and numerical methods will then be applied to representative gas turbine combustor flows.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Flow Parametrics, LLC	Supporting Organization	Industry	Ivoryton, Connecticut

Primary U.S. Work Locations	
Connecticut	Ohio

Robust High Fidelity Large Eddy Simulation Tool for Gas Turbine Combustors, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Robust High Fidelity Large Eddy Simulation Tool for Gas Turbine Combustors, Phase I

Completed Technology Project (2007 - 2007)

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
  - TX15.1 Aerosciences
    - TX15.1.7 Computational Fluid Dynamics (CFD) Technologies